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THE

OPHTHALMIC RECORD.

VOL. I. AUGUST, 1891. No. 2.

PATHOLOGY AND ETIOLOGY OF TRACHOMA.

Written for the Opthalmic Record by

JOHN F. FULTON, M. D., P. H. D.,

Professor of Ophthalmology, Otology and Hygiene in the University of Minnesota. ST. PAUL, MINN.

It is often claimed that specialists become narrow and do not keep abreast in knowledge with the general profession in general pathology and physiology; but this claim cannot be justly made in regard to the representatives of Ophthalmology, for the most brilliant discoveries that have been made in this branch of medicine and surgery have been in consequence of the advance which has been made in pathological studies. This cannot be better demonstrated than by glancing at the history of the progress made in the treatment of trachoma.

Before the pathology of this most troublesome of all deseases was known, the treatment was tedious, unsatisfactory and unscientific. But the discovery of the pathology of the disease has suggested the scientific remedy, which has resulted in cutting short the disease, in curing it in a very short time in many cases, which formerly required many months and sometimes years.

No more interesting study can be presented to the student of medicine than the study of the pathology of trachoma. This

should not be mistaken for those small semi-transparent bodies seen in the normal conjunctiva, especially within upper and lower retro-tarsal folds, at the outer side, which are supposed to be lymph glands and known as the follicles of Krause. It should not be confounded, however, in any way with granulations of healing wounds, as there is no resemblance in the production of the two processes.

Briefly stated, in trachoma we have papillary outgrowths of great irregularity, rapid proliferation and degeneration of the epithelial elements of the conjunctiva, vast accumulation of lymphoid cells in granular masses and variously diffused infiltrations, pathological development of connective tissue and multiplication of bloodvessels, with more or less serous effusion. The typical feature in this morbid production is the formation of follicles. The follicles contain but very few blood-vessels, but are surrounded by a vascular net-work. The epithelium and papillæ become swollen. The papillæ becoming crowded together, in a mechanical way, produce ulceration thus presenting rather deep pockets, in which are found dead epithelial cells.

In 1881–82 Sattler of Prague described a micro-organism, which he claimed was the cause of trachoma. The investigation of Sattler was elaborated by Michel, who clearly demonstrated the relationship of cause to effect of the diplo-coccus to trachoma of the conjunctiva. The diplo-coccus is much smaller than the gono-coccus, and in shape and position greatly resembles the staphylococcus-pyogenes, being, however, slightly larger, and does not have the same disposition to mobility. The trachoma-coccus is usually arranged in chains. According to Schmidt it is easy to produce trachoma from the cultures of the coccus in birds. In mammals it is more difficult to accomplish. The trachoma-coccus is found in all parts of the conjunctiva, and in advanced cases in the sub-conjunctival tissue. They are also found in the secretions of the trachomatous eye.

Stadrini noticed that the diplo-coccus would much more readily produce trachoma when placed under the conjunctiva of poorly nourished animals, than if so placed under the conjunctiva of animals which were well fed. The same author found

the specific coccus in groups of three to nine, and more in the protoplasm of the lymphoid cells of trachoma, but never really in the fibrous tissue or in the connective tissue of the conjunctiva. Follicular conjunctivitis and trachoma, pathologically speaking, are the same disease. They differ simply in intensity, follicular conjunctivitis being simply a mild form of trachoma. The diplo-coccus is found in both, and the pathological products of both diseases are identical. The trachoma follicle resembles in many particulars the formation of tubercles, the one being the result of the diplo-coccus, the other of the tubercular bacilli. "At least both seem to have this in common, that when they disappear the tissue in which they are embedded is destroyed, and a cicatrix is the result."

It having been proven that this is a specific disease, or rather a disease due to a specific cause, which is a micro-organism, it is interesting for us to trace the different pathological steps which take place in the conjunctiva, and tissue lying under the conjunctiva, from the time of the entrance of this micro-organism to the close of the disease.

"We must imagine that the micro-organism, either at a wounded spot of the epithelium, or perhaps even through the uninjured epithelium, penetrates directly into the cytogenic tissue, and here produces a hyperplastic enlargemnt of the lymph-follicles, eventually leading to new formation of follicles. The best conception of the manner of operation of the trachoma-coccus is gained by comparing it with the behavior of the conjunctiva when infected with the Neisser gono-coccus, which morphologically bears such uncommon resemblance to the trachoma-coccus."

In the earliest stages we notice simply an irritation, resulting in an exaggeration of the normal condition of the parts. This is followed by a hyperæmia of the bloodvessels and lymphatics. This is speedily followed by the formation of pathological tissue, which constitutes the chief characteristic of the disease, namely, the production of heaps of lymphoid cells. The lymphoid tissue usually forms more or less diffusely in the layers of the conjunctiva, immediately under the epithelium, becoming less and less

dense in the deeper layers, until finally we arrive at isolated individual lymph cells, associated occasionally with leucocytes and more or less serous effusion. Isolated lymph cells will also be found between the accumulation of the lymphoid bodies, known a granulations. An enormous quantity of lymphoid tissue is most frequently found in the retro-tarsal folds, rising up in large ridges, occasionally forming large isolated wart-like portuberances. Sometimes the granulations cover the white mucous membrane of the conjunctiva like sharp, pointed red papules, presenting a velvety appearance; sometimes they look like red flattened warts, and sometimes present themselves in long ridges, like a cock's comb. If a transverse section is made through one of these abnormal growths, it will be found to consist of heaped together lymphoid cells, in which follicles in imperfect stages of development will frequently be found. These lymphoid bodies have a frame-work consisting of finely reticulated connective tissue. Usually a limiting capsule more or less perfectly formed, can also be made out. According to Reid, the follicles are not surrounded by any definite capsules, and do not increase in size by development from within outwards, but by the incorporation of surrounding lymphoid cells. Together with the formation of this characteristic pathological tissue which constitutes trachoma, is the production of the other phenomena of inflammation, such as the increase of the flow of the blood to the parts, the adenoid mucous tissue becoming infiltrated with white blood-corpuscles and lymph cells, the exudation of liquid elements of the blood into the surrounding tissue, and the formation of new blood-vessels. While these lymphoid changes are going on in the deepest structure of the lid, the epithelium also undergoes characteristic changes. Individual cells which often become stellate, become greatly distended, the nuclei may become pressed to one side, producing so-called goblet cells; their contents become discharged, and frequently the superficial epithelial layer is thrown off, leaving a dry, irregular, papilliform surface. In this way to a large extent, the mucous membrane may become destroyed or transformed into a mass of fibrous connective-tissue, thus losing its

function as a secretory membrane; a condition of distressing dryness is produced and a shrinking of the tissue; the hair-follicles of the tarsus become distorted, resulting in trichiasis and entropion. The palpebral fissure often becomes shortened by the production of inflammatory products at the canthi, thus interfering with the normal function of the lids. By mechanical irritation and the loss of normal physiological secretions the cornea becomes hazy, the epithelium becomes diseased, blood-vessels grow upon its surface, and irregular astigmatism is produced. The pathological process may extend further, resulting in ulceration and destruction of the corneal tissue, producing perforation of this membrane, in its turn resulting in anterior-staphyloma, and thus shut the victim up in everlasting darkness. For the mechanical irritation of the cornea by the enormous mass of granulation tissue on the lids may produce complete opacity of the cornea, which results in blindness.

ETIOLOGY OF TRACHOMA.

In regard to the etiology of trachoma, it should be noticed that it is distinctly a local disease and is not a symptom of any constitutional dyscrasia. It is due to a specific germ. It seems to act only on the conjunctiva, producing a pathological product to be found nowhere else.

Trachoma is admitted by all authorities to be a contagious disease, the disease being produced by the secretion of a trachomatous eye being conveyed to another. The purulent and muco-purulent secretions are the chief carriers of contagion, although it may be conveyed by these secretions becoming dry and being blown out into the atmosphere. All the secretions from a trachomatous eye, even the watery, are probably capable of reproducing the disease, if they come in contact with any conjunctival surface.

It is unfavorably influenced by bad hygienic surroundings, damp atmosphere and improper nourishment. There is a very strong predisposition to the disease shown in certain races, such as the Irish, the Jews and Eastern races. In Egypt at the present time it is difficult to find a native who is exempt from

this terrible pest. It is very common among the North American Indians, and in this race it usually assumes the malignant form. It is the most common cause of blindness among this race of beings. On the other hand, it is the rarest of all diseases among the Negro race. This was originally pointed out by Burnett, and has been confirmed by many other observers. Bochman has observed on a visit to Northern Norway, that although trachoma was frequently met with in all parts of the country, it was very much more so among the Finns, who were very dirty and lived in houses always full of smoke.

Iwanoff found out of 1,522 soldiers 19.7 % affected with trachoma. Among the recruits when admitted the percentage of trachoma was only 5.7 %, but in six months it had risen to 9.5 %. Of the soldiers who had been in the regiment longer than a year, 23.3 % were trachomatous, while the number of recruits thus affected had varied in the last five years between 2 and 5.7 %. After an examination of the lodgings of the different companies, he concluded that impure air alone did not produce the spread of trachoma; that damp lodgings favored it to a certain extent, but that direct infection with the microbes was the only cause of the spread of trachoma.

The condition of the atmosphere is undoubtedly an important factor in the production of the disease. A very interesting paper has been written recently on this subject by Reisenger. He quotes Chibret as saying, "that trachoma will not become epidemic at a height more than 250 metres above the sea-level, and that it loses its contagion at a height of 250 metres. Seggel and Barde are of the same opinion. The same author points out the fact that most of the trachoma patients come from the low regions, where there are many swamps and ponds, and a great many people crowded together. The disease is, therefore, usually endemic. In certain localities it is a constant plague.

It is quite rare to meet with the disease in children under six years of age. The same can be said with regard to people over 50 years, although the disease is unquestionably met with at all ages. It is most frequently met with in persons between 16 and 45 years of age.

TRACHOMA AND ITS TREATMENT.

POWDERED JEQUIRITY.

Written for the Ophthalmic Record by
W. CHEATHAM, M. D.,
Clinical Lecturer on Diseases of the Eye, Ear, Nose and Throat, University of Louisville.

In the management of this most obstinate disease, I use atropia sulph., in the saturated solution of acid boracic, from the begining to the end. It serves several purposes for me; it puts the eyes at rest; it is antiseptic; it strangulates some of the trachomatous bodies, and the hypertrophied papillae; it relieves corneal photophobia. The boracic acid in the solution also prevents local irritation, which sometimes occurs from the long continued use of atropia sulph. I frequently add to an ounce of the solution, zinc sulph. gr. $\frac{1}{4}$ or $\frac{1}{8}$ for the same purpose. When a case of trachoma presents itself to me, as I stated before, I order the use of the atropia solution immediately, for the purposes I have given, and also to get the refraction of the eye. In all stages of this disease, it is my aim at the earliest moment to get the correct refraction; I cannot recall a case now in which I failed to find an error. To this error of refraction I attribute the primary cause of the disease; the disease I consider a specific one; the error of refraction simply prepares the soil for the reception of the germ; correct this error as soon as possible, and we prevent many relapses of the disease. So I repeat, it is my constant endeavor to find the existing error, and correct it by glasses. My routine treatment is, after correcting this error of refraction, or even before, to give specific directions (I often write them) as to the hygiene to be observed: how to prevent extention of the disease to other members of the family, etc. I order hyd. oxid. flav. gr. viii to gr. xii, to vaseline ℥ j: cupri sulph. in crystal or solution, one to be applied to the granulated lid for two weeks, then the other for two weeks, thus alternating. After using the blue

stone, to bathe the eyes in hot water for ten or fifteen minutes: not to use either of them closer than three hours to bed-time. I find a large majority of more acute cases yield readily to this treatment, in connection with tonics. In some of the more advanced and severe cases, I puncture each trachomatous body with an electrolytic needle. Where scarification is indicated, I use an electrolytic knife, and rub in thoroughly acid boracic pulv., hyd. oxid. flav. oint. or pyoktanin solution. In many cases, I give pyoktanin solution for home use. I find some cases in which cauterizing is of much service. Again I find some cases in which there is great hypertrophy of the papillæ, completely concealing the trachomatous bodies, in which I get a wonderful lot of good from the use of the curette. Very occasionally a case in which the removal of the cul-de-sacs is of service. But in the old cases, or even more acute cases, in which all other remedies appear to fail—even in some cases in which there is free suppuration, and again ulceration of the cornea, with pannus, and sometimes in cases in which there is no pannus, I get more wonderful results from the use of the powdered jequirity.

Since the uses of jequirity were made known, I have put it to many practical tests, and have yet to have it to fail me. I know of much that has been written against it, by the best men of this and other countries, but my faith in it has never been shaken. For many years I have given up the use of the infusion of jequirity as dangerous, and have instead had made an impalpable powder. I claim for this powder that it will, in one application, do more than several applications of the infusion, with none of its dangers; that the powder will keep indefinitely if kept dry; that its action is easily confined, and does not spread to the tear-ducts and other places where its action is not wished; that it will not produce ulcerations of the cornea, as it is claimed the infusion does. I have used it numbers of times in cases of corneal ulceration, with trachoma, with much benefit. The making of the powder in an open mortar is attended with some danger. The party who made it for me has been unable to smell anything since.

Some cases of severe trachoma, with pannus, I treat entirely with the pulverized jequirity, making three, four, five or six

applications. Many cases, in which I had unsuccessfully tried all other treatment, before I knew of jequirity—many of them having passed from me through other hands with similar results—returned to me afterwards, and by the use of the jequirity have been restored to useful vision. Of course I do not claim vision $\frac{20}{20}$ in such cases, but when they can be brought from perception of light, or counting fingers at a few feet, to vision enabling them to move around comfortably—vision equal to $\frac{20}{40}$ or even more—I call the result good. I find some of these cases, of course improve on other treatment between the applications of jequirity powder, and many of them get the same treatment that had been tried by myself and others with no good results, so I think the honor must be given to the jequirity. To those who are afraid to be as bold as I am in its use, I suggest they use it on their more hopeless cases. There are many people, in this country, who are considered hopelessly blind, to whom useful vision can be restored by the use of jequirity powder.

My method of using it is as follows:

I make a mop or brush by twisting a little surgical cotton on a match or wood tooth pick, and get a small portion of the powder on it by dipping it into the powder dry. I evert the lids and apply the powder by dusting it on the conjunctival surface. I never do this without having a perfect record of vision, and the condition of the eye, and usually use it in but one eye at the time. I send the patient out with the direction that nothing be done to the eye, not even to bathe it unless the swelling and pain should become too great to bear. I see the patient daily. Should the pain and swelling become too great, iced cloths, hot cloths, boric acid or carbolized water applied for a while controls it very readily. Occasionally I have had to give morphia to a timid patient; not over twice in all the cases in which I have used it. In four or five days if the other eye is involved, I make the application then in the same way, in the mean time making the usual application, such as atropia sulph, cupri sulph, ammonia muriate, argent. nitrate or hyd. oxid. flav. ointment, to first eye treated.

In a few days, if necessary, the jequirity can again be used. As I stated before, I have used it in cases in which the cornea was much involved with no bad result. I have used it in cases in which murco-purulent discharge was excessive. In fact, in cases in which all other treatment had failed no matter what the condition of the cornea, I would not hesitate to use the jequirity. I have at times given it to patients to use on themselves or members of their family. Under such circumstances, I have used it on some members of the family, so they know how to manage it. This I do not advise only under extreme circumstances, such as is often the case, the family being very poor, and living at a distance, unable to send but one for treatment. Of course in these cases no accurate record of vision can be gotten, some of the cases, I will report, have been reported before.

Chas. M. has had granulated lids for years: pannus and ulcers of cornea, V. R. = $\frac{2}{200}$, V. L. = $\frac{3}{200}$, jequirity applied three times V. R. = $\frac{8}{200}$, V. L. = $\frac{16}{200}$.

W. B. D. an ancient case of Trachoma with pannus V. R. = $\frac{2}{200}$, V. L. = $\frac{10}{100}$, jequirty used twice, V. R. = $\frac{16}{200}$; V. L. = $\frac{20}{200}$ S. D., V. R. = perception of light, V. L. = $\frac{1}{200}$, jequirity used four times. V. R. = $\frac{20}{40}$, V. L. = $\frac{20}{40}$.

Mrs. J. S., V. L. = counting fingers at six inches, jequirity used once, V. L. = $\frac{20}{200}$ +.

Thos. C., V. R. = $\frac{2}{200}$, V. L. = $\frac{4}{200}$, jequirity used twice, V. R. = $\frac{20}{200}$.

Ben A. Has had bad eyes all his life. Old trachoma with pannus, V. R. = $\frac{5}{200}$, V. L = $\frac{5}{200}$, jequirity used once, March 3rd, 1891, V. R. = $\frac{20}{70}$, V. L. = $\frac{20}{200}$.

Miss Lizzie T., Trachoma with pannus for six years, V. R. = $\frac{3}{200}$: V. L. = $\frac{2}{300}$: no improvement with glasses, jequirity used twice, V. R. = $\frac{20}{40}$ with + 1.50 D. c. axis 135°, V. L. = $\frac{29}{40}$ + with + 2 D. c. axis 75.°

These are a few of many. Many of these cases with only perception of light, have been able to see to go anywhere in from three to ten days after the use of the jequirity. Two cautions I must repeat. Have a record of the patient's vision before the

use of the jequirity, and see the patient daily. These instructions I have occasionally failed to follow myself, still I advise others to not neglect them. The jequirity powder must be very carefully made. The shell of the bean is very hard, and if not completely bolted out, will do much harm. The powder I use is as fine as flour. Its action is perfect. There is often an elevation of temperature with chilly sensations following the use of the jequirity, showing its action is not entirely local. A druggist in this city has a supply of the powder constantly on hand.

TRANSPLANTATION IN MINOR DEGREES OF ENTROPION.

Read before the Section of Ophthalmology at the Kansas State Medical Society in Wichita, May 13, 1891.

BY J. E. MINNEY, A. M., M. D.,
TOPEKA, KANSAS,
Professor of Ophthalmology and Otology, in the Kansas Medical College.

TECHNIQUE OF THE OPERATION.

The hands and instruments of the operator and assistants are aseptic.

The integument of the lids, face, brow and forehead on the same side with the eye to be operated on are washed with soap and warm water. Again washed with a warm saturated solution of boracic acid or one to 1000 of bichloride. The lids of the eye are separated, and the eye douched with a few tablespoonfuls of the boracic acid solution. The lids are then everted and their mucous membrane douched thoroughly, as the eye. The skin from which the graft is taken, preferably from behind the ear or

from the trochanteric region or forearm, is cleansed in the same manner as the lids of the eye operated on, and a piece of absorbent cotton wet with the warm boracic acid solution, is kept on the surface, until the surgeon desires to remove the piece.

The lid to be operated on is again everted and douched with a few dropper fulls of the warm acid solution. The horn spatula is placed beneath the lid to support it, and is held by an assistant while the incision is made.

The incision is made corresponding to the inverted cilia, extending from a point 2 to 4 mm. beyond either side, 2 mm. in depth, being careful to keep well on the inner border of all the cilia, it should reach down well, separating the mucous membrane from the cartilage.

The lid is let return to its normal position; a compress of absorbent cotton, which has been wrung out of a hot saturated solution of boracic acid or water previously boiled, is placed over it and held in situ by an assistant until the graft is ready to be inserted. The graft is from one third to one half longer than the prepared incision and from 1 to 2 mm. in width. It requires two incisions to block it out. The incisions begin and terminate at the same point, including an elliptical shaped piece of skin, the graft, of the required length and breadth. A small sharp pointed scalpel is the preferable knife for this operation.

An assistant sponges with absorbent cotton, squeezed dry as possible out of the acid solution, or boiled water cooled, and the surgeon with a pair of fixation forceps, catches hold of the point of the graft and with a pair of small blunt pointed scissors curved on the flat, frees it from its moorings by five or six snips.

The assistant everts the lid, sponges the clot out of the opening, and the graft is placed in position, cut surface to cut surface, and pressed in gently until it is even with the surface margin of the lid and the ends tucked in smoothly. The lid is let return to its normal position and when closed the margin of the lower lid is seen to coaptate, holding the graft in position.

Two or three sutures are required to close the wound from which the graft has been taken, and over this a strip of adhesive plaster is placed and it heals by first intention.

A compress of absorbent or borated cotton, wrung dry out of hot water or acid solution, is applied to the eye, and over this three or four layers of absorbent or borated cotton dry, and a bandage firmly applied over all; and the patient is directed to return in forty-eight hours, at which time the bandage is removed. By this time the graft is usually attached. A lighter compress is applied, the same precautions of cleanliness having been observed, and within the next forty-eight hours the bandage can be removed permanently.

Although having three entropium forceps, in this operation I use none:

1. Because the pressure on the tissues causes oedema of the lid, which is unfavorable to primary union.

2. The hemorrhage comes on after the graft is in and when the forceps are removed, which has a tendancy to wash it out and also to form a clot, and separate the cut surfaces.

3 It is difficult, sometimes impossible, to get the lid in position with them to operate.

Without this pressure and by the spatula, the hemorrhage is free but soon over; the parts are depleted and by the time the graft is ready to be placed, a warm clot has formed in its bed; the graft fitted in, there is comparatively no more hemorrhage.

The tissues of the surrounding parts are not bruised, there is no oedema, and nature is ready to go to work immediately.

A warm slightly alkaline solution in a clean dish, should be in readiness, to hold the graft in case it could not be placed in situ right away. For should it be too large it must be pared down and it must be free of fat, and during this time it is to be held in the solution. It is best to place it immediately, when free, in position, if it will fit.

Time is an important element in this operation. Should the graft turn a dirty ashen grey color, while manipulating it in the water, it is probably dead and should be thrown away.

The small blunt pointed scissors curved on the flat, are an important factor in removing the graft. When pressed down firmly there is but little danger of mutilating the graft.

The underlying tissue is softer than the derma and they invariably cut below in the softer yielding tissues.

It is better to have the graft too large than too small. Should it grow, it can be pared off weeks afterwards without pain to the patient, as it remains insensitive for a long time.

Should the pressure of the lid continue to irritate the eye, a canthotomy will relieve it.

If a few cilia grow through the graft, the cautery needle will destroy them.

An oily substance should not be smeared on the brow and lid. It gets between the lids and in the wound and defers union.

Both eyes should be bandaged for the first 48 hours if the patient cannot prevent synchronous movement of the lids.

The graft should not be placed in the alkaline solution unless absolutely necessary.

If considerable time has been consumed in the operation, or in aged or poorly nourished patients, compresses wrung out of hot water or boric acid solutions and applied to the eye for five or ten minutes, changing them several times during the time, before bandaging, insures the vitality of the graft.

The part from which the graft is to be taken should be examined by a three inch glass and the surface having the fewest small hairs or down selected.

The above operation is suitable to the upper or lower lid.

No anæsthetic but cocaine applied locally, is required.

There is no deformity.

It does not meet the graver forms of entropion, although during the past two years I have employed grafting in cases where formerly I did the Hotz operation, and especially in trichiasis, where I formerly destroyed the cilia.

If the lids are granular, treatment can be continued after the third day of the operation.

The thorough cleansing, depletion and rest, all favor cure.

To have clean and warm instruments, they are kept in a warm saturated solution of boric acid during the operation, when not in use.

A NEW METHOD OF OPERATING ON THE "FROG-SPAWN-LIKE" OCULO-PULPEBRAL FOLDS.

Written for the Ophthalmic Record by
EUGENE SMITH, M. D.,
Detroit, Michigan,
Professor of Ophthalmology and Otology, Detroit College of Medicine.

My dear doctor:

In response to your invitation to give the Record a description of "my operation" for relief of trachoma, allow me first to say the operation *per se*, is not original with me, but as methods differ, I will gladly give you mine for the benefit of the readers of the *newest*, and perhaps *to be*, *newsiest* Ophthalmic Journal.

I find the operation most applicable in cases of isolated trachomatous bodies, and in cases where the "frog-spawn like deposits" are in folds, running the full length of the retrotarsal folds, quite aptly described by Noyes in his recent work as follows:—"redundant gelatinous granular masses, which, when the lids are everted, resemble the everted rectum of the horse after defecation."

Some years ago Galizowski of Paris, gave to the profession his method of *excision* of the retrotarsal folds in cases of trachoma, but the method has not been generally adopted. Later the "squeezing process" or "smashing method" of dealing with them was advocated, and Noyes of New York, Knapp, and others have had special forceps made for this purpose. When done in this way the folds are taken between the blades of the forceps and by a squeezing and dragging motion combined, a bloody serum is squeezed from the conjunctiva, the trachomatous-bodies being "smashed," and disappearing by absorption. I believe comparatively slight reaction follows. The method I pursue is as follows:—I use an ordinary pair of curved forceps, similar to iris forceps, but without teeth, and having a *long curve*.

In the case of isolated bodies, I slit the conjunctiva across the top of *each*, and placing a blade of the forceps on either side of it, *squeeze it out*. In cases having the redundant folds I slit the conjunctiva with a Graefe Knife the full length of each fold and, with the same forceps, make a squeezing and *stripping* motion, and on examination, find that I have squeezed out, not only a bloody serum, but the gelatinous bodies *in toto*. Reaction is slight, and the cure is more rapid than when the squeezing has taken place without incision. In the *diffuse* variety of thickening, I have assisted the cure by *scarifying* the thickened edge of the everted cartilage and *squeezing* with a pair of entropion forceps, one blade in the retrotarsal fold, the other in front of the cartilage. In cases of this character I do not find the "gelatinous" matter in the material squeezed out, but think cases so treated recover more quickly than by ordinary methods.

Does this "squeezing stripping" process cure more rapidly? In answer to this question I may say that to-day (May 29, '91), two (2) cases were in my office whom I operated upon by this incision and squeezing process six and nine months since, and each was cured in two to three weeks. Before I operated, they had been treated for many months by ordinary methods without much relief. I can strongly recommend its trial by all ophthalmic surgeons, and like jequirity, in suitable cases, it will prove a boon to the surgeon as well as the patient. The operation is made under influence of cocaine, and may be used as an adjunct to the ordinary treatment.

Most truly yours,

EUGENE SMITH, M. D.

The small, nearly imperceptible linear cicatrices which follow the method above described, are of *no importance*, and seemingly disappear entirely in a few weeks.

130 LAFAYETTE AVE. E. S.

CONJUNCTIVITIS GRANULOSA.

PUMICE-STONE.

Written for the Ophthalmic record by
PETER D. KEYSER, M. D,
Professor of Ophthalmology, Medico-Chirurgical College,
PHILADELPHIA, PA.

Conjunctivitis Granulosa is known to present itself in different forms and stages, and as one of the most difficult diseases of the eye to cure, especially when chronic, and as there have been so many treatises upon it giving its various forms, pathology, course and treatment, it is not my purpose to touch upon any thing but a description of one peculiar form, which is but rarely found as a remnant or after-stage when the general characteristics and inflamation have passed away. It is so infrequent, that in the course of twenty-five years experience I have observed but three cases beside the one specially detailed below, and which gave me much consideration, on account of my inability to cure under the generally known methods of treatment at the time.

The form observed is characterised by a few isolated or grouped raised points on the tarsal conjunctiva of the upper lid, having a reddish yellow appearance of a hard cartilagious feeling to the finger, and are so minutely attached that they cannot be raised by the finger nail.

The conjunctiva generally appears in pretty good condition, having only a very slight hyperæmia. There is a small quantity of viscid mucous discharge from the eye, with an irritable feeling only.

June 1st, 1889, Captain B., U. S. Army, brought his son LeRoy, act. 13, to me for examination of his eyes, with the history that, while at Fort Bennett, Dakota, in 1881, he became snow blind and conjunctivitis set in. He was treated at that Port from March to July, of that year, when he went to Marshall, Mich., under treatment from July to October; then at Fort

Munroe, from October 1881 to May 1884, during which time he ran the routine of treatment for conjunctivitis granulosa: blue stone, alum, lunar caustic (mitigated), tannin and glycerine, and even the granulations cut off with knife and scissors. From May to September 1884, treated at Ann Arbor, Mich.; from September 1884 to May 1886, at Fort Lincoln, Dakota, where jequirity was tried, and still not cured. From May 1886 to March 1887, at Fort Sully, Dakota, where powdered borax was rubbed in the conjunctiva without benefit. March 1887, went again to Marshall, Mich., under treatment until August 1887; then to Madison Barracks, N. Y., until the Spring of 1889 when he went to Newark, Del. From the latter place he called to see me on his way again to Marshall, Mich., for the Summer.

The condition of his eyes on June 1, 1889, was as follows:

R. E. Strabismus convergens. Hard cartilaginous form of granulations, isolated and in small groups on the tarsal part of the conjunctiva of the upper lid. They were firm and solid, and felt to the finger and nail like gristle. Cornea slightly hazy. No granulations in the conjunctiva of the fold nor on the lower lid, which really appeared very little affected. There was a viscid mucous discharge from the eye.

L. E. In somewhat the same condition as to the cartilaginous granulations on the tarsal conjunctiva, but not so many nor so large.

As he was leaving immediately for the West, I prescribed an ointment of hydrargyrum oxidatum flavum to be rubbed in the eyes daily while away. I did this hoping that it might irritate somewhat, and by setting up a certain amount of inflammation soften the granulations and then, by after treatment, be able to absorb or remove them.

He returned to my office September 5th, and I found no change in the condition of the eyes in the least. The ointment had not created any inflammation. Being aware that he had really undergone all the various methods of treatment in use and suggested in the literature, it became a matter of thought with me what to do, especially as it appeared not wise to re-inflame the now quiet conjunctiva. Knowing the gentle action of fine pumice stone upon hardened thickened tissue, I determined to try it in

this case, and see if, by the friction on the top of each isolated and grouped granulation, they could not be rasped down. I procured a piece of fine pumice and cut it into a broad pencil, with one flat surface and commenced the same day, Sept. 5th, with the rubbing. The operation was very painful but the lad stood it bravely. After the operation cold water applications were made over the closed eye lids. Little or no inflammation was created. The next day a 2% solution of cocaine was instilled into the eye lids before the operation of rasping. It went much easier on account of less pain. The operation was again repeated on the 7th and on the 10th, 14th, 18th, 21st, 28th of September and on October 5th, 12th and 19th, by which time the cartilaginous-like formations were all rasped down, and the whole conjunctiva perfectly smooth and even. There was but slight congestion in the eyes and now only Acid Borici gr. x to ℥ i, was instilled into the eyelids three times daily. Every thing was so well that, on the 26th of October, I operated for the strabismus, having previously corrected his defect in refraction which was:

R. E. + 1. D ⌔ + 1. D. cyl. 90°; *L. E.* + 0. 5 D. ⌔ + 0. 5 D. cyl. 90°.

His eyes have remained very good up to this time July 1st, 1891, and he is now a student in college.

In connection with this I desire to state that about one year ago, Professor Manolescu, of Bucharest, wrote to me requesting that I would try his method of brushing out the folicles from the conjunctiva, in severe forms of the folicular conjunctivtis granulosa. It is done by a very stiff tooth brush, made firm and stiff enough by cutting the bristles off to the length of a quarter of an inch. I have had the most happy success with this method in the treatment of some very troublesome chronic cases of this disease where no other treatment gave relief, and can recommend the same very highly. The operation is very painful and should be done under an anesthetic, as cocaine does not give the necessary relief.

PERSISTENT HYALOID ARTERY.

Written for the Ophthalmic Record by GEO. H. PRICE, M. D.
NASHVILLE, TENN.

Dr. John B. B called, February 25, to have his vision investigated, which has been defective in right eye for some twelve years. Examination revealed loss of central vision in right eye, and the ophthalmascope showed large choroidal patch covering the region of the macula and extending beyond in all directions. Above and toward the disc the patch was white and glistening, with margin clear cut, while, toward the outer and lower margin it was much pigmented, being quite dense at points.

The patient gives history of good vision until he was about 18 years old, at which time he suffered considerably with his right eye, which resulted in the central scotoma as now found. This condition had been diagnosed by others, whom the doctor had consulted, hence he was informed in regard to this point but the special feature to which I desire to call attention, is indicated by the heading of this report, and of which he says he was not informed.

Upon looking into the eye, the first thing which attracted my attention was a peculiar condition of the lens in its upper half. There seemed to be several small opaque lines running from the center of the lens upward, one slightly to temporal and other slightly to nasal side. Turning on stronger lenses I began to make out that these lines branched, the branches being very fine, and these again branching. Upon closer inspection I also discovered a branch given off and going toward the lower margin of lens, which presented the same features as those above, but made out with more difficulty. An idea of the condition, as seen with the ophthalmoscope, may be had from figure 2.

The point from which these processes came seemed located just within the vetreous, and hence, as the eye was moved, there was a slight wavey motion transmitted to the main branches, showing that they were not attached in entirety to the lens or its capsule. The point to which these branches converged was now looked into, it was pale blue, transluscent, and situated about 2 to 3 mm. behind the lens, and a prolongation extending

back into the vitreous. Following this extension, a canal could be plainly made out. It grew slightly larger in its approach to the disc, while at the same time it became more translucent, so

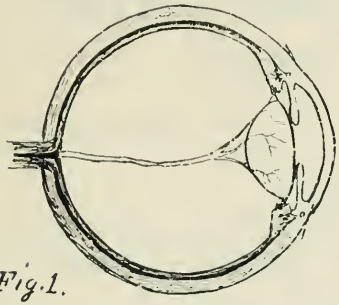

Fig. 1.

Fig. 2.

that it was almost entirely transparent where it was attached to the disc, at the bifurcation of the central artery. When the patient was directed to look up, the canal could be made out from disc to within a short distance of lens whence the branches were given off. Upon motion of the eye it took on a slight wave-like motion. Figure 1 gives a very good idea of the appearance. While this condition had been present since birth, the patient had noticed no dimness of vision until after the choroiditis which resulted in the scotoma, before spoken of.

Being struck with this and the patient telling me that he was slightly deformed on right side, I concluded to examine his left eye. Looking into the left eye, I immediately saw that there was a small dark spot, which upon investigation proved to be on the posterior portion of the capsule.

I asked patient about vision in this eye. He told me that there had always been a spot in front of that eye, which obscured a portion of the word at which he looked while reading, and that it always advanced with the movement of the eye, across the page On looking into the eye I could plainly see a small remnant of the hyaloid artery, attached at the center of disc at the point of bifurcation of the artery, and extending into the vitrious 2 to 3 mm. The vision in this eye is 20—xx and patient does not complain of spot when looking at distance.

I report this case as the condition found in right eye is not often met with, and again because he had been examined several times and his attention had not been called to this feature.

THE OPHTHALMIC RECORD,

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THE AMERICAN MEDICAL ASSOCIATION.

This large body of medical men held its annual session in Washington, D. C., May 5 to 8. As was expected, President Briggs, of Nashville, directed and controlled the business of the general session with admirable tact. He decided all questions promptly and without wavering, and thus enabled the Association to transact its business in a reasonable period of time.

The President's address, delivered on the first day, was short, occupying 31 minutes, but was brim-full of pertinent thoughts and good suggestions. One of the best suggestions made was: that an Executive Committee be created, to consist of two members from every state society in affiliation with the Association, the members to be elected by the state societies; and that to this committee be referred all matters of business, the action of the committee to be considered as final. The special committee to whom the address was referred reported recommending the adoption of the suggestion. So the idea, in some form or other, will become a feature of the Association at no very distant day.

Just how this "Business Committee" should be formed, whether by election of the state societies or by election on the part of the several Sections of the American Medical Association, is a matter worthy of careful consideration. If Dr. Briggs'

suggestion be carried out to the letter the committee will be very large, possibly too large for the good of the Association. Since the life, or at least the greatest prosperity, of the Association depends on the character of the work done in and by the Sections, now numbering eleven, it would seem not an improper thing for this Business Committee to consist of three members elected by each Section. (This suggestion will be found in the editorial columns of the American Lancet, June '91, page 221.) This would give us a body of thirty-three men, as the Sections now stand, who, if properly chosen, could more safely manage the business of the Association than it could be transacted by the massive body itself. An objection to this suggestion of Doctor Connor is: one Section not knowing what other Sections have done may elect its member or, if first year members, only to learn later that the combined elections give to the committee a majority from one point of the compass. This, on its face, would be objectionable but not more so than the present method of doing business.

Dr. Connor's further suggestion that the retiring Chairman of each Section be the one to succeed the retiring member of the "Business Committee" would seem, at first glance, to obviate this danger; but possibly six or more of the Chairmen may have been chosen the year before from the same part of our country.

In spite of any wish to the contrary there is a North, a South, an East, a West. In politics, in religion and in medicine each of these four great parts of a greater country desire full representation. May the best thoughts of the best men prevail in our meeting a year hence.

THE SECTION OF OPHTHALMOLOGY,

OF THE AMERICAN MEDICAL ASSOCIATION.

From the organization of this Section, only a few years ago, down to the present time there has been continuous and rapid progress. No similar body of men on earth is composed of

more earnest and practical workers. Its labors, if properly presented to the Ophthalmic world, would bear favorable comparison with that of any other body of men engaged in the same line of thought and practice. Its last meeting was by no means its worst. Future meetings will do well to equal it. Chairman Connor deserves the special credit accorded him by individuals and by the Section for the zeal and energy which he threw into his year's work. He presented to us the best programme we have ever had. His appointment of men to open the discussion on a paper, or on a series of papers on kindred subjects, was just the thing. A man knowing before-hand that he will be expected to discuss a certain paper will come better prepared than he would otherwise be. The fact that one or more had been appointed to open the discussion did not prevent a free and full discussion on the part of other members, provided anything of importance had been left unsaid.

The five papers on Cataract read on the first day were all carefully prepared, and the discussions that followed contained thoughts worthy of being treasured. The Editor of the Record took full notes of the discussions and will use them in future issues, in connection with extracts from the papers, which, of course, cannot be made until the Editor of the Journal of the Association sees fit to publish the papers in full. It was to be expected that at least some of the work of this Section would be published within two months after the adjournment of the Association, but nothing of the kind has been done. Surgery, Gynecology and Practice seem to have driven into the back-ground all material from other sections. After these older sisters have had their say then the younger—may I say more sprightly—will be allowed to speak. Until this yet-looked-for time comes *notes* would be out of place since they could not be accompanied by extracts.

What has been said of the character of the papers read on the first day is equally applicable to those read subsequently. The discussions also continued to be to the point, consequently valuable. Notes on all of these discussions are in hand and will be presented to the readers of the Record in due form when

the proper time comes—in connection with extracts from the papers eliciting the discussion.

Chairman Connor's address was short but practical. In it he suggested that steps be taken by the Section toward collecting and republishing, in permanent form, all papers read and discussions had at any one meeting. According to a law of the American Medical Association all papers read in any Section, found worthy of publication, must first appear in the Journal of the Association. With comparatively little cost, at the time any paper from our Section is published in the Journal, plates can be made. After the publication of the last paper, all of these plates can be brought together, and after a suitable arrangement of same, a volume can be gotten out that would be of great value not only to members of our Section but also to Ophthalmic Surgeons living in this and other countries who are not members. The book would not be very large, and, gotten up as suggested, could most likely be sold for two dollars or less. There might not be a very large sale of the first volume but the time would come, the value of the publication having become known, when the edition would have to run up into the thousands. The matter will be duly considered between now and the Detroit meeting, at which time final action will most likely be taken.

A second suggestion found in the Chairman's address was to the effect that the Section of Ophthalmology have an annual dinner on the second day of the meeting of the Association. A committee reported favorably on this feature of the address and it was decided that the first of these Section dinners be indulged in at the Detroit meeting next June The cost is to be two dollars a plate, every member attending the dinner paying his two dollars. This will no doubt be a source of great enjoyment, and a means of drawing together more closely the brotherhood of the Section.

Still another suggestion was that a committee be appointed to look after the good of the Section. It was unanimously agreed that such a committee should exist. The Chairman appointed Dr. S. C. Ayes, of Cincinnati, Chairman of committee, to serve three years, Dr. F. C. Hotz, of Chicago, to serve two

years and Dr. Edward Jackson, of Philadelphia, to serve one year. At the expiration of each term of office a successor shall be elected or appointed for a period of three years. It is expected by the Section of Ophthalmology that, in due time, all the other Sections will have such a committee, and that, eventually, all of these committees will organize for the common good of all the Sections. Great good may come to the Association from this new move.

The newly elected officers of the Section of Ophthalmology are:—Dr. J. L. Thompson, of Indianopolis, Chairman, and Dr. George de Schweinitz, of Philadelphia, Secty. The work of the Section for another year is in good hands. There is no doubt but that the new Chairman aided by his Secretary will make the next meeting equal to the last—it will be hard for them to make it superior to it.

STEVENS' NOMENCLATURE ADOPTED.

Not enough appreciation has been manifested toward Dr. Geo. T. Stevens, of New York, for the valuable service he has rendered Ophthalmology, in devising and introducing terms that are not only purely scientific but also wonderfully expressive of the conditions to which they have been applied, viz. Anomalies of the ocular muscles. "Orthophoria" is a word easily spoken and written, and when its derivation is once known its meaning thereafter is always clear. How much less breath it takes to speak it and how much less ink to write it, than if we were compelled to say or write: "The ocular muscles are well balanced in their action." The latter sentence is not clearer in its meaning than the former word. "Heterophoria," "an incorrect tending," a want of harmony in the action of the ocular muscles, is another term easy of comprehension and scientifically correct. The same may be said of all the terms used to indi-

cate the different forms of Heterophoria, viz. Esophoria, Exophoria and Hyperphoria.

Up to the present hour there are men who either have not comprehended these terms or else are wholly unwilling that anything good shall come from a source not peculiarly their own; for they would gladly have all of us believe that these terms are unnecessary, unmeaning and unscientific. Some few rejoicingly exclaim "no scientific body on earth has adopted Stevens' nomenclature." Such may not know that the best Greek scholars in the world placed the stamp of their approval on these terms before they were presented as a rich gift to the ophthalmic world.

There can be no doubt but that the record books of the great majority of oculists show the free and frequent use of "Stevens' nomenclature." Almost all recent papers abound in these terms. So common has become their use that authors of books cannot much longer ignore them.

It cannot be longer said that "no scientific body on earth has adopted Stevens' nomenclature." The Section of Ophthalmology of the American Medical Association, composed of a body of men as richly worthy of the appellation "scientific" as any other association of oculists on this or any other continent, performed a long neglected duty, at its last meeting, by adopting *unanimously* the "Stevens' nomenclature."

REFORMED NUMERATION OF PRISMS.

Growing out of the paper read by Dr. B. Alex Randall on "the Centrad in Reformed Numeration of Prisms" and the discussion of same by Dr. Swan M. Burnett, the following "agreed-to" resolution was offered and adopted by the Section of Ophthalmology, American Medical Association :—

"That prism shall be taken as a unit whose displacing power is one centimetre at a distance of one metre."

CONTRIBUTIONS FOR THE RECORD.

Original papers that would be creditable to the authors, and useful to the readers of this journal, will always be gladly received and promptly published. Such papers must be written *for the Record*, as it is against the policy of this journal to take, for publication as original, a paper that has been furnished, in duplicate, to some other journal.

Letters based on observations made in *private* practice, will find a hearty reception not alone at the hands of the editor but on the part of the readers as well. Unfortunately too much of such material is lost either because of carelessness or neglect. If Daviel had forgotten his observation of a crystaline lens dislocated into the anterior chamber, and had neglected his practical experience in removing same through a corneal incission, possibly the extraction of cataract would be an unthought of thing to-day. If the Record can garner some of the thoughts of the practical men engaged in their private work, it will help to enrich the science of ophthalmology.

That great source of medical advancement, the public clinic, will be utilized. Arrangements will be made by means of which fresh and readable reports of clinics will appear in the Record While the large clinic will be looked to for much that is good the small clinic will be expected to do its part.

Authors of papers can have reprints of same at cost of paper and press-work. If reprints are desired the author should so state at time of sending in his paper.

While the editor of the Record is not responsible for the published thoughts of contributors, he will hold himself, in duty bound, to oppose, editorially, whatever error he may have published for another, and to applaud the truths that may need emphasis.

The readers of the Record are invited to assist the editor in watching that no false doctrine appearing in its pages shall go unchallenged. Errors, whatever the source of their publication, may be combated in the pages of the Record.

EXTRACTS

Good material that has been published in other journals will not be ignored by this. Extracts more or less copious, and, in rare instances, entire re-publication, will be made, but in every case not only the author but also the journal making the original publication will receive credit for same.

THIS ISSUE.

It is with a considerable degree of pride that the editor sends forth this issue of the Record. The several papers on Trachoma are worth much more than the subscription price of the whole volume. Every one of these papers can be read and re-read with profit. In the department of Otology will be found matters of interest to those practising Otology as well as Ophthalmology.

As will be seen 32 pages could not contain all that was prepared for this number, and as a consequence you have the 8 extra pages. This will not cause the number of pages of reading matter in No. 3 to be less than 32.

THE NEXT ISSUE.

In the next issue we will begin the study of Sympathetic Ophthalmia, by the publication of a translation of a sharp and spirited discussion of the subject recently between De Wecker and Abadie, the one favoring resection of the optic nerve and the other injections of the bichloride of mercury and, in the event of this failing, enucleation. Much thought is now being devoted to this subject on both sides of the Atlantic. The Record will garner some of them.

The study of Trachoma will be continued in the next issue. It will contain a paper on the "Pathology of Trachoma," by Dr. Swan M. Burnett, who holds, and in this paper expresses, views differing materially from those given by Dr. Fulton, in this number of the Record. The virtue of the Iodide of Silver in the treatment of this disease will be strongly set forth by Dr. Hodges, who introduced it, and whose experience with it has been most favorable.

The letter from Dr. Roosa, on "muscular insufficiencies," published some months ago in the "Ophthalmic Review," will be *reviewed* in the next issue of the Record. As we read it there are errors in it that should be combatted. This, as all other reviews of current Ophthalmic literature, will be conducted in a spirit of fairness.

Other papers on subjects of no mean importance will be presented. Some of these papers are already in hand while others are in process of preparation.

No. 3 will appear on the first day of September.

SAMPLE COPIES.

No. 1 of the Record was sent to every Ophthalmic Surgeon, in the United States and Canada, whose address had been learned. A good proportion of these have already become subscribers, and others no doubt intend to subscribe. No. 1 was sent out so far ahead of its date of publication it is reasonable to suppose that some, having made up their minds to become subscribers, seeing that the second issue would not be out until about August 1st, deferred doing so for a time, until possibly, the matter has been temporarily forgotten. As a gentle reminder of the existence of such a publication No. 2 is sent also as a sample copy to those who have not yet subscribed, with the hope that they will find it such an agreeable visitor they will want all subsequent numbers to follow it. A subscription blank will be found enclosed in each sample copy. If *you* wish its visits continued please fill out blank and forward it with the subscription price at once. If you are not heard from between now and the time for No. 3 to go to press it will be taken for granted that, for cause best known to yourself, you do not wish to be a subscriber; and only the necessary number of copies will be run off. No more sample copies will be sent to persons who have received Nos. 1 and 2.

EXCHANGES,

The Record's exchange list is growing. None so far have spoken a hard word against the new-born Journal, while several have contained paragraphs filled with the kindest expressions of welcome. With its politest bow it will enter monthly the sanctum of its valued exchanges, bearing good will to all and envy to none.

NOTICE OF ADVERTISEMENTS.

F. A. Hardy & Co., Manufacturing Opticians, whose full page advertisement is in this issue of the Record and will continue to appear in every number of the current volume, are in every way worthy of the large trade now at their command, Ophthalmic surgeons cannot do better than have them do their lens work. The writer's experience with them, covering a period of several years, has been most satisfactory.

The Perfection Chair has been in constant use in the practice of the editor of the Record for the past two years and has given perfect satisfaction. He would not exchange it for any other chair he has seen. See Miner & Elberg's advertisement in this Journal.

BOOKS AND PAMPHLETS.

THE CLINICAL USE OF PRISMS.

The above is the title of a little book by Ernest E. Maddox. M. B., of Edinburgh. It should be read and re-read by every man engaged in the practice of Ophthalmology, who has not already made himself perfectly familiar with the subject. It can be had of F. A. Hardy & Co., Chicago, Ill., at a cost of $1.00.

PAMPHLETS.

Quite a number of reprints have been received, of which due notice will be taken in future issues.

Department of Otology, Laryngology and Rhinology.

GEO. H. PRICE, M. D., EDITOR, 621½ Church Street,
NASHVILLE, TENN.

SECTION OF LARYNGOLOGY AND OTOLOGY OF THE A. M. A.

The programme prepared and presented in this Section, was indeed full of interest to all who had the good fortune to be in attendance upon the meeting of the Association May 5 to 8 inclusive.

While this was the case, yet it was unfortunate that the President Dr. Carl Seiler, was unable to be present.

This section is of growing importance, and its influence is being felt in all departments of work in the comprehensive science of medicine, therefore it is to be regretted that some of those who are looked upon as investigators by reason of their opportunities and abilities, should absent themselves from the meetings, and more especially when they are given prominent places upon the programmes.

The papers read and discussed were full of timely and thoughtful suggestions as to methods of investigating, diagnosing and treating, not only those conditions which are known, but also new manifestations of complicating conditions which have received special consideration of those into whose hands they have fallen. As yet none of the papers from this section have been published in the Official Journal of the Association, and hence we are deprived of the pleasure of presenting to our readers the thoughts of those who favored us at that time, however we hope the next issue will bring us some of the good tidings promised from this section.

ON THE INFLUENCE OF NASO-PHARYNGEAL OBSTRUCTIONS UPON THE HEARING.

Written for the Record by

OREN D. POMEROY, M. D.,

Surgeon to the Manhattan Eye and Ear Hospital.
Prof. of Otology, N. Y. Polyclinique, Etc.

Inasmuch as Laryngologists and Rhinologists are in the habit, at this time, of removing all sorts of Naso-pharyngeal obstructions, with the view of restoring a greater or lesser loss of hearing, it seems to the writer pertinent to inquire into the results of these operations upon the hearing, and to ascertain how far the hopes held out for improved hearing are realized.

In obstructions of the nostrils from a deviated septum, polypi, hypertrophy of the turbinated bones, spurs on the septum, or even bony closure of the nares, we have more or less difficulty in nasal respiration.

This results in mouth breathing or a tendency towards it, with its well known mischievous results, which will not be enlarged upon here. In the effort of inspiration through a narrowed nostril the air supply being insufficient, rarefaction of the air in the upper pharynx occurs, and air is actually abstracted from the drum cavity; in expiration the reverse condition obtains;—air is forced into the drum cavity, and there is likely to be a to and fro motion of the drum membrane. This inevitably produces a certain amount of mischief to the drum membrane and the middle ear mechanism, from what may be easily conceived to be of the nature of traumatism. I would not assert however, that closure of one nostril alone, with the other normally pervious would necessarily produce this result.

Another objection to closed nostrils is, the inability of the patient to properly cleanse the parts by blowing the nose, using the handkerchief etc. In this condition, the catarrhal state is aggravated and likely to be perpetuated.

Again;— these swellings sometimes secrete enormously, to the great obstruction of the nostrils and annoyance of the patient, also aggravating any pre-existant catarrhal con-

dition. I firmly believe that the course of rhinitis tends towards pharyngitis of the upper and lower spaces as well as a disposition to involve the Eustachian tubes and drum cavities. It follows then that a commencing rhinitis, arrested, may ward off an attack of pharyngitis and otitis. Any treatment of the nostrils, therefore, that improves their condition, acts towards *prevention* of deafness, or at least amelioration of the ear catarrh.

When however, we are confronted with a middle ear catarrh, acute or chronic, new conditions arise, and the state of the drum cavity and Eustachian tube demands attention

Where there is acute hyperaemia of the drum cavities, no treatment of the throat is likely to be of direct influence; and leeches to the ear, hot applications, the aural douche anodynes etc., will be indicated. Usually the drum cavities should be inflated, collections in the tympanum removed by paracentesis or by inflation, besides other measures which are likely to have no bearing on the condition of the throat.

In subacute and chronic aural catarrh the condition of the Eustachian tubes is the most important objective in treatment. In the first place the tubes are rarely closed;—never closed unless as the result of cicatricies consequent on reparative action after a considerable loss of substance—notably from syphilitic diseases, or more rarely from hyperostotic processes. The fact that the tube may be opened by catheterization or other methods of inflation does not in the least indicate that tubal functions are properly performed. The air supply of the tympanum should always be adequate and the Eustachian tubes should keep up this supply by their capacity for opening by muscular action, often enough to maintain an adequate tympanal supply. The causes which ordinarily interfere with this function are, blocking up of the pharyngeal mouth of the tube by inflammatory products, swelling of the lining of the tube by catarrhal inflammation, thus diminishing its caliber so that even by the utmost effort of the tubal muscles the passage of air into the drum cavity is prevented altogether or greatly diminished. In other cases it would seem that the muscular system of the tubes was greatly weakened from atrophy of the muscles themselves, a secondary result of the catarrhal inflammation which often in-

volves the submucosa, when the tubal muscles partake of the inflammatory process, with the consequent atrophy. It is evident then that nasal obstructions affect the hearing only somewhat remotely, principally by abolishing or diminishing nose breathing and in a general way keeping up the catarrhal condition. It has recently been stated by eminent rhinologists of my acquaintance, that operations for the removal of nasal obstructions, more especially of enlarged turbinate tissue, had resulted in conspicuous and permanent improvement to hearing, quite beyond the best hearing obtainable by inflation during the earlier portion of treatment.

These were cases of chronic aural catarrh of some years standing. I have all my life, taught that in these cases the utmost improvement to hearing was that obtainable by inflation, being careful that exactly enough air was forced into the tympanum to produce a correction of the collapsed drum membrane.

This proposition is based on the fact that deafness in these cases depends on obstructed tubes in many instances, hence improvement from inflation. But there are other cases where the tube is too patulous, and the deafness depends on changes in the condition of the middle ear mechanism, the result of ear catarrh, in which rigidity of the ossicular chain of bones, or even true anchylosis results, together with sclerotic changes in the lining of the middle ear, and the formation of adhesive membranes in the ear cavity, which may so tie up, so to speak, the middle ear mechanism as to seriously interfere with its vibratility. In this condition, can it be believed that the removal of nasal obstructions will greatly improve the hearing? The most that can be accomplished is to possibly improve the condition of the Eustachian tubes, or to perform some of the operations for the relief of the faulty tympanal condition.

Within a few days, I have treated a medical gentleman for tinnitus and deafness, who had been through a course of treatment for nasal obstructions, without relieving the ear symptoms in the least. It was one of those cases liable to be overlooked; the appearances of the drum membranes did not indicate much ear trouble; the pharynx was not specially faulty, the hearing by my watch was about 48 inches, which is ordinarily regarded

as normal, but on inflation, the hearing came up at least two feet; there was tinnitus. This observation proved insufficient ventilation of the drum cavity and sunken drum membrane, with hearing lowered. I believe there is no exact test for normal hearing—the most hearing obtainable in a given case is not more than normal. In this case, spraying the mouth of the Eustachian tube with an astringent, and Politzer's inflation has brought the hearing up about one-third, with almost total abolition of the tinnitus.

I think I am right in asserting that many most excellent men treat the throat with the expectation that the condition of the ears will correct themselves. Two or three years since, I treated a medical man for a slight chronic cartarrhal otitis media. I did not regard the nostrils as sufficiently obstructed to call for removal of any enlargements. His hearing was accurately noted by my watch. After a time I discharged him in an improved condition.

Subsequently on meeting him on the street, he remarked that he was entirely cured; he had had his nostrils operated on; every possible obstruction had been removed, and his condition had been declared perfect. I asked him to call and let me test his hearing. He did so, and I found the hearing considerably lowered from the condition existing at my previous examination. I will not enter here on the discussion as to how often operations in the nostrils provoke otitis. I believe most men admit that these do, at least occasionally. I believe the vicinity of the Eustachian tube should be treated with a certain amount of gentleness. I have even seen Politzer's inflation produce considerable harmful traumatism to the ear.

In regard to the removal of adenoid growths; I believe there is no question as to the advisability of doing so when the nasal respiration is hindered, or where a post nasal catarrh is aggravated by their presence, which probably is always the case.

If the Eustachian tubes are encroached upon by these growths, so as to act mechanically in interfering with the ventilation of the drum cavity, they should be removed. Fortunately the latter condition exists somewhat rarely, as the growths oftener are found in the vault of the pharynx, by preference in the

middle line, above and internal to the region of the Eustachian tubes

I have heard of most extraordinary improvements to the hearing from the removal of these growths, but have never been able to verify them by careful personal observations. It seems to me that the same rule must obtain here as in nasal obstructions; that the hearing cannot rise much, if any, above the best that may be obtained by the most careful inflation. If considerable violence is used in removal of these growths, the hearing may be actually lowered. Some time since, adenoid growths were removed from the pharynx of a child under my care, whose hearing for the watch was about twenty inches in each ear.

About a month afterwards, the hearing had diminished to about four inches, and nothing seemed able to raise it above this point. There had been no inflammation apparently, and it was hard to explain the phenomenon. The result of the removal was satisfactory in every other respect.

In the foregoing observations I do not wish to be understood as opposing operations on the naso-pharynx, which just now may be a little too popular—but to give a reasonable hint as to how much good is likely to be done to ear complications by these operations.

316 Lexington Ave., N Y.

REPORT OF CASE OF SALIVARY CALCULUS IN BARTHOLIN'S DUCT OF SUBLINGUAL GLAND.

BY GEO H. PRICE, M. D.,
Nashville, Tenn.

About the middle of June of this year, Miss E. called at our office to consult concerning a formation in the floor of mouth, which had been causing some trouble and apprehension for some months past. She said, that about one year ago she had noticed a small round hard mass in the floor of mouth on right side,

which at that time was about the size of a duck shot, which from time to time became much iritated, causing pain and inconvenience more noticable during mastication. At this time she was in the habit of chewing gum, but as this gave her pain and seemed to irritate the little development, she concluded it was the cause of the trouble and abandoned its use, with the hope of getting relief. This caused a lessening of the irritation but not of the size of the tumor, which rather increased in size as time went on. Several months since she consulted her physician in regard to the trouble, who, after an examination, thought it due to a simple glandular enlargement and would subside with treatment. At this time there was considerable swelling and more or less pain all the time, which was aggravated during mastication. The treatment resorted to reduced the inflammation, rendering the condition more tolerable but the nodule continued to grow. As before stated she called to consult Dr. Savage, touching her condition about the middle of June, at which time an examination revealed the following :—

Patient complained of swelling in floor of mouth on right side, which was quite painful, causing difficulty during mastication and inconvenience during any attempt to talk. The sound of the voice indicated a fullness of the tissues of the mouth. Inspection revealed an enlargement in floor on right side, in position of sublingual gland. Palpation discovered a tumor which could be easily felt between the fingers, one inside the mouth, the other under the floor externally.

The tissues were much thickened, thus masking in a large measure the true condition, though there seemed to be a nucleus of greater density.

The position, history, and physical signs pointed to a calcareous deposit in the locality named, which was accordingly diagnosed, and the patient informed that an operation would be necessary to remove the concretion, to which she consented. The swelling being considerable, it was deemed advisable to attempt to reduce this, and a local application of Tr. Iodine was made externally for several days, when the condition was more favorable as to this symptom, and diagnosis was more certain,

which was confirmatory of the first conclusion reached in the case.

A 10 % solution of cocaine applied to the mucous membrane acted well, and with a scalpel a line of incision was made in the floor of mouth, over the duct of Bartholin. The point of the scalpel soon corroborated the diagnosis by grating upon the calculus. It required some dissection with scissors and manipulating with the finger to dislodge the body, which was quite rough upon its surface. The calculus is $\frac{5}{8}$ of an inch long, $\frac{5}{16}$ wide, $\frac{1}{4}$ thick, rough upon its surface and shaped much like an almond. There has been no after trouble, and none is apprehended. This condition, according to Gross, is extremely rare, he having had only one. Others mention this condition, though but few have met with it.

The case is reported on account of the rarity of the condition, and again on account of the fact that a failure to diagnose and remove may be the cause of considerable discomfort to the patient.

In diagnosing such cases, it would be admissable and expedient to resort to a sharp pointed probe or needle, for the purpose of discovering a suspected calculus, which would prove a positive means of arriving at a conclusion where there was any doubt in the case.

EXTRACT.

Dr. G. I. Cullen, in the May number of the Cincinnati Medical Journal, gives an interesting article on the "Treatment of Hypertrophied Tonsils by means of Ignipuncture," the features of which are presented to our readers.

"The galvano-cautery posseses the power of filling a double vocation, that of completely dissecting the tonsil and that of merely reducing it in size by the cicatrization of the tissue of which it is composed."

Cocaine, a 4% to 10% solution to which phenol has been added, which lessens its constitutional and increases its anæs-

thetic effect, is applied. Then with an electrode, which will upon slight pressure enter the crypt, two or three punctures are made according to the condition of the tonsil, and the patient is dismissed for three to six days. The treatment in the meantime consisting of a soothing anti-septic wash of menthol, resorcine, or a modification of Dobell's Solution.

In those rare cases of after hemorrhage from this procedure he prescribes tannic acid 2 parts, gallic acid 1 part, with sufficient water added to bring it to the consistency of thick cream, and orders the patient to take a sip of this, which has in his experience invariably checked the hemorrhage at once.

"The degree of heat used is that of a moderate red, the knife being allowed neither to cool to a black heat before its removal from tissue, as pain and hemorrhage will result, nor to attain anything like a white heat, as in that case the pain will be more severe and the danger of injuring surrounding tissue greater."

The indications for this method of treatment he gives as the following;

"1. When tonsils have ceased to perform their function by reason of interstitial thickening and occlusion of the lacunæ of the glands, in which condition the mouths of the crypts becoming blocked with the accumulation of sebaceous matter, which rapidly decomposes, they form an excellent culture medium for various pathognic germs, which may ultimately be absorbed into the lymphatic system.

"2 That when a tonsil shows itself competent at short intervals to become inflamed and give rise to peritonsilar abscess.

"3. Where the tonsil is so situated that it is a matter of great difficulty as well as danger to use the tonsilotome, and from extensive adhesion of the pillars, likely to cause severe hemorrhage by their being cut.

"4. In all cases where the patient is of hemorrhagic diathesis or in other cases in which alarming hemorrhage is feared.

"5. When patients will not consent to the use of the knife and yet the demand for the removal of the gland is imperative."

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